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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,714	09/23/2003	Marius K. Orlowski	SC12928TP	2214
23125	7590	02/03/2005	EXAMINER	
FREESCALE SEMICONDUCTOR, INC. LAW DEPARTMENT 7700 WEST PARMER LANE MD:TX32/PL02 AUSTIN, TX 78729			MALDONADO, JULIO J	
			ART UNIT	PAPER NUMBER
			2823	

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/668,714

Applicant(s)

ORLOWSKI ET AL.

Examiner

Julio J. Maldonado

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-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondenc address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-20 is/are allowed.
- 6) ☒ Claim(s) 21 and 22 is/are rejected.
- 7) ☒ Claim(s) 23 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The rejection as set forth in Office Action mailed on 12/03/2004 is withdrawn in view of applicants' remarks.
2. Claims 1-24 are pending in the present application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deleonibus (U.S. 6,091,076) in view of Bhandari et al. (U.S. 6,379,748 B1).

In reference to claim 21, Deleonibus (Figs.3-9) teaches a method of forming an isolated transistor comprising the steps of providing a substrate (50); forming a channel isolation structure (84, 86, 88, 90, Fig.8) underlying a channel structure (95, Fig.8); forming a current electrode isolation structure (60, 62) in the substrate (50) at each one of first and second current electrode regions disposed laterally to the channel structure (95), the channel isolation structure (84, 86) and the current electrode isolation structures (60, 62) being formed to adjoin; and depositing a current electrode (92, 94) over each of the current electrode isolation structures (60, 62), wherein said depositing consists of chemical vapor deposition and wherein said current electrode is a metal selected from a group that includes titanium (Deleonibus, column 5, line 27 – column 7, line 67).

Deleonibus fails to teach epitaxially growing a current electrode. However, Bhandari et al. teach a method of forming titanium layers that includes chemical vapor deposition and vapor phase epitaxy (Bhandari et al., Abstract and column 2, lines 45 – 50). It would have been within the scope of one of ordinary skill in the art to combine the teachings of Deleonibus and Bhandari et al. to enable forming the metal electrodes of Deleonibus to be performed according to the teachings of Bhandari et al. because one of ordinary skill in the art at the time the invention was made would have been motivated to look to alternative suitable methods of forming the electrode of Deleonibus and art recognized suitability for an intended purpose has been recognized to be motivation to combine. MPEP 2144.07.

In reference to claim 22, the combined teachings of Deleonibus and Bhandari et al. teach wherein the forming the current electrode isolation structures (60, 62) comprises oxidizing at least a portion of the substrate (50) (Deleonibus, column 5, line 27 – column 7, line 67).

Allowable Subject Matter

1. Claims 1-20 are allowed
2. Claims 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record neither teaches nor suggest providing a channel structure being

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suspended over a semiconductor substrate; and depositing a channel isolation layer between the channel structure and the semiconductor substrate.

Conclusion


3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Julio J. Maldonado whose telephone number is (571) 272-1864. The examiner can normally be reached on Monday through Friday.

4. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (571) 272-1855. The fax number for this group is 703-872-9306 for before final submissions, 703-872-9306 for after final submissions and the customer service number for group 2800 is (703) 306-3329.

Updates can be found at <http://www.uspto.gov/web/info/2800.htm>.

Julio J. Maldonado
Patent Examiner
Art Unit 2823

Julio J. Maldonado
February 2, 2005


George Fourson
Primary Examiner